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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/785,982

02/26/2004

Yasutaka Ishii

3273-0184P

2642

2292

7590

07/07/2006

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EXAMINER

OH, TAYLOR V

ART UNIT

PAPER NUMBER

1625

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/785,982

Applicant(s)

ISHII ET AL.

Examiner

Taylor Victor Oh

Art Unit

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/30/04</u> . | 6) <input type="checkbox"/> Other: _____ |

The Status of Claims

Claims 1-3 are pending.

Claims 1-3 are rejected.

DETAILED ACTION

1. Claims 1-3 are under consideration in this Office Action.

Priority

2. It is noted that this application has a foreign priority document, Japan 2003-051362 (02/27/03).

Drawings

3. None.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the phrase "an aromatic compound" is recited. This phrase is vague and indefinite because the aromatic compounds are belonged to the chemical art of various compounds; the claim did not specify what they are in the claim. Therefore, an appropriate correction is required.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asahi et al (US 5,760,288) in view of Ichikawa et al (US 3,920,734).

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Asahi et al teaches a process of producing an aromatic carboxylic acid by oxidizing an aromatic compound having an alkyl group with oxygen containing gas in an aqueous medium in the presence of a catalyst containing a transition metal incorporated into a heteropoly-acid skeleton(see col. 1 ,lines 49-55) as shown below (see col. 5 ,lines 45-55):

	usual range	preferable range	optimum range
$[\text{SiW}_{11}\text{O}_{39}]^{4-}$	<8.2	<8.0	<7.8
$[\text{Pw}_{11}\text{O}_{39}]^{7-}$	<7.2	<7.0	<6.8
$[\text{PMo}_{11}\text{O}_{39}]^{7-}$	<5.2	<5.0	<4.8
$[\text{GeMo}_{11}\text{O}_{39}]^{9-}$	<4.7	<4.5	<4.3

In addition, examples of the cation to the heteropoly-acid anion include alkali metal ions such as a proton, a sodium ion, a potassium ion and a cesium ion and tetraalkylammonium cations (see col. 3, lines 9-11).

The catalyst of the present invention is formed by incorporating a transition metal into the heteropoly-acid anion having the above-mentioned deficient structural moiety. Generally, the transition metal includes one or more elements selected from elements of Groups 5 to 10 and one or more elements selected from elements of Group 11. Preferable examples thereof include V (vanadium) of Group 5; Cr (chromium), Mo (molybdenum) and W (tungsten) of Group 6; manganese (Mn) of Group 7; Fe (iron) and Ru (ruthenium) of Group 8; Co (cobalt) and Rh (rhodium) of Group 9; Pd (palladium) of Group 10; and Cu (copper) of Group 11. Of these elements, the transition metals of Group 8 are preferable, and Ru (ruthenium) is especially preferable

in view of the high levels of the catalytic activity and the selectivity. By the way, the periodic table of elements is based on IUPAC Inorganic Compound Nomenclature, revised edition. Examples of the transition metal compound include transition metal salts such as a chloride, a bromide, a sulfate, a nitrate and an acetate of at least one element selected from elements of Groups 5 to 11; and an alkoxide, an aquocomplex, an ammine complex and an acetylacetonato complex thereof. Of these compounds, the compounds free from a corrosion source of a reaction vessel such as a halogen atom or the like are preferable in view of lowering a quality level of a reactor material.

(see col. 3

,lines13-37).

However, the instant invention differs from the prior art in that the introduction of carbon monoxide is not disclosed in the claimed process.

Ichikawa et al discloses a process for producing an aromatic carboxylic acid by reacting an aromatic compound with carbon monoxide and molecular oxygen in the presence of a catalyst containing a palladium carboxylate (see col. 1 ,lines 14-11).

Both processes are commonly involved in the process of producing the aromatic carboxylic acid under a similar reaction condition (oxidation reaction) ; furthermore, Ichikawa et al does offer guidance that the presence of the water gas containing carbon monoxide and air containing oxygen (see col. 6 ,lines 39-42) in the reactor can be an ideal condition for the oxidation process. Therefore, it would have been obvious to the skilled artisan in the art to be motivated to incorporate the Ichikawa's et al the

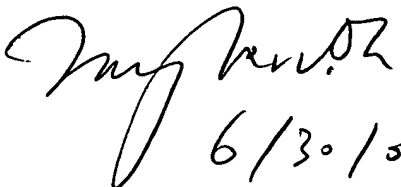
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water gas containing carbon monoxide into the Asahi et al process in order to optimize the reaction process. This is because the skilled artisan in the art would expect such a combination to be successful as well as effective as shown the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas McKenzie can be reached on 571-272-0670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


6/30/06